

# AMATEUR RADIO

The title 'AMATEUR RADIO' is prominently displayed in large, bold, black letters with a white outline. Below the letters is a stylized map of Australia in black and white, centered on the coast. The map is set against a red background with a radio tower silhouette. The radio tower has several lightning bolts radiating from it, suggesting signal transmission.

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# AMATEUR RADIO

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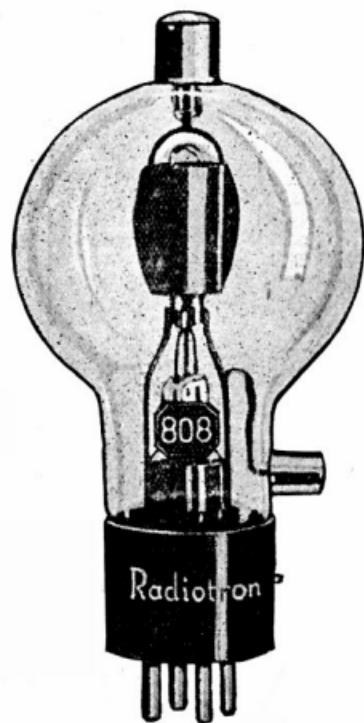
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## EDITORIAL

It is interesting at this stage to review the proceedings, set-backs, and finally advances, that have occurred during the preparations by the I.A.R.U., and National Societies, for the forthcoming International Telecommunication Conference to be held in Cairo in 1938. It is there that the amateurs either rise or fall.

The barometer of success fluctuated greatly during the last few months, and the hope that the I.A.R.U.'s policy for Cairo would be accepted was very low.

The policy was chiefly concerned with the extension of the 7 MC band to 7.5 MC, and it was to this end that amateurs throughout the world were striving.

The first set-back was that of the A.R.R.L. in America, when their petition to the Committee controlling the allocation of wave lengths was refused. When this request was denied the league took four successive appeals to successively higher bodies, each time with similar results.

In New Zealand the authorities were approached, and they refused to sanction an increase in the 7 MC band.

The R.S.G.B., in England, have received no definite answer, but it is significant that the R.S.G.B. does not expect a favourable decision.

It can be seen that the outlook was not too promising, and it was only the arrival of General Letter 14, dated January, 1937, from the I.A.R.U., that gave the amateurs a lead. An extract would explain:—

"The R.E.F. (France) brings good news. It reports that, in contrast to the attitude expressed in other countries, it has secured the adoption

both by a sub-committee and by the entire French preparatory committee of the principle that the amateur 7-mc band should be enlarged. No specific figures for enlargement were urged, but it was stipulated that the enlargement should be in the high-frequency direction, and as far towards 7.5 mc as possible in consideration of other services.

"The second point of recognition achieved by the R.E.F. in its preparatory conference concerns the creation of harmonic bands in the ultra-high frequencies, i.e., 112-120 mc, 224-240 mc, etc., to be exclusively assigned to amateurs. It proved impossible to secure the adoption by the Committee of this position. It is, however, not the French policy to leave such allocations to chance, especially in recollection of the early situation created by the lack of international agreement concerning the frequencies above 1500 kc. Eventually, therefore, the R.E.F. secured this concession: The French delegation, while not desiring to initiate such a proposal, will support it if advanced by another administration."

So much for Cairo, the amateur societies of the world see daylight, and there seems no need to cling to the "Status Quo," which they were nearly reconciled to do. Matters remain in the I.A.R.U. hands.

Maybe member societies can influence their Governments, if not to support the proposal, at least not to oppose it. There is a lot to do yet, and it is activity during the next few months that will count.

WM. MOORE, F.H.Q.

# Ultra Short Wave Receiver

66 MC/S—30 MC/S (4.5-10 Metres.)

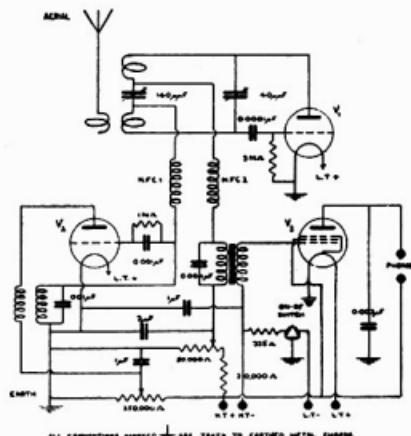
(By courtesy of the Manufacturers of  
"Eddystone" Components.)

The ultra short waves are now becoming widely used for communication and television purposes, and amateurs all over the world are carrying out experimental work on the possibility of their further application. Results up to date show that the use of these ultra short waves is particularly adaptable for short distance telephony over what is practically an optical range. Within these limited distances, even small power gives a clear and strong signal. The general working distance seems to be about twenty to twenty-five miles, but this range is reduced in cities, due to buildings and other obstructions, or is increased up to fifty to eighty miles when the transmitter is taken on to high, hilly ground or two or three thousand feet up by aeroplane.

The designer of a receiver for ultra short wave reception can utilise most of the fundamental circuit arrangements in common use for broadcast reception. There are, however, difficulties as far as the amateur is concerned both in the design of the ordinary straight circuit and in the super-heterodyne circuit, and for the present conditions, the super-regenerative receiver appears to afford the most satisfactory solution for the experimenter who is commencing this class of work. In the super-regenerative arrangement, the frequency of the incoming signal is split up by a superimposed frequency known as the quench frequency, which is generated in the receiver itself. This method renders the tuning comparatively flat compared with the other circuit arrangements, in which the tuning is very critical indeed.

In fact, with such arrangements, a weak signal can be completely overlooked or is very difficult to find. Further, unless the transmitter is crystal controlled, the slightest variation in frequency at the transmission end or any variation of tuning at the receiv-

ing end will cause the signal to completely disappear. The super-regenerative method enables these weak signals to be broadly tuned, and slight variations at either transmitter or receiver end are by no means pronounced.



One of the characteristics of the super-regenerative receiver is the quench noise, which can be heard when the receiver is not in tune with any incoming signal and which diminishes practically to zero when a signal of sufficient amplitude is picked up. The smallness of the amount of quench noise which remains when weak signals are received constitutes the successful design of this type

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of set. It is common practice in super-regenerative receiver design to have the anodes of the detector and quench valves in parallel, and to use a common high tension supply. Although this works very well in practice, it has the disadvantage that if the amount of quenching in the circuit is reduced for weak signal reception, there is also a drop of voltage on the detector anode, so that the sensitivity and efficiency of this portion of the set suffer. In this present new design, the circuit has been modified so that both the quench valve and detector valve receive different high tension supply and the quench frequency is fed to the detector stage by grid modulation. Separate high tension controls in the form of variable potentiometers are arranged to control the anode voltages of both quench and detector valves, and this arrangement permits the detector valve to be always operated at the point of maximum sensitivity and efficiency while the amount of quench can be reduced to the lowest limit necessary for reception purposes. In this receiver, therefore, a weak signal can be received with maximum efficiency as far as the detector is concerned, and with the smallest possible amount of quench noise.

## Constructional Details.

The receiver is built into a two-piece diecast metal cabinet, which affords perfect screening and absolute rigidity, in addition to which it is of a very suitable and convenient size for portable purposes. The top half of the cabinet should be taken off the hinges so that the receiver components can be more easily fixed and wired. Owing to the compact size of the set, some of the components need to be put in and wired first before the parts are placed in position. The dial and the two potentiometers should be mounted first, followed by the switch, 2 mfd. fixed condenser and the two 1 mfd. condensers. The rest of the components can then be mounted and wired. It is advisable to put in the coupling piece, the mounting bracket for the tuning condenser, and the tuning condenser, and get these correctly lined up, but for ease in wiring the components situated underneath the tuning condenser, this latter item can be temporarily removed. The spindle of the standard Microdenser needs to be shorter, so that it does

not protrude too far into the coupling piece, and if the condenser is purchased separately, a short length of the spindle may have to be cut off. With the low loss Frequentite valveholders used it is advisable to prevent any chance of fracture, and so lead washers should be placed under the small pillar feet of the valveholder before mounting to the pillars or down to the baseboard. The same lead washers should also be used under the head of the screw on top of the valveholder ring. Countersunk screws, and not round head screws, should be used for fastening the valveholders down. The actual wiring details are clearly given in the wiring plan, and point to point connections, but the following observations may be useful:—

The 140 m.mfd. reaction condenser is mounted underneath the Microdenser on two 2" pillars and H.F. Choke 2 lies under this condenser, with its highest end nearest the coil holder pillars, its bottom end being about 1" from the baseboard. H.F. Choke 1 is mounted under the Microdenser at the side of the 140 m.mfd. condenser, and slopes the other way, its bottom end being some 8" from the baseboard. Lead No. 3 is made to a soldering tag in connection with the baseboard of the set, this tag being clamped down by one of the 2½" pillars supporting the centre valveholder. Lead No. 4 runs down this same pillar and is joined to the tag at the bottom.

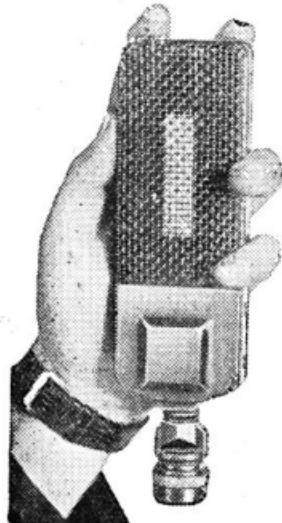
Lead No. 7 is made by actually placing the tag of the .001 mfd. condenser over the screw of the valveholder V2 terminal. The 3 megohm grid leak, the wire ends Nos. 14 and 15 of which are connected across the two legs of the valveholder, lies immediately under the valveholder ring. The .0001 mfd. condenser from this same valveholder to one of the coils is in a horizontal position just above the valveholder ring. The 20,000 ohm resistance connected to the 50,000 ohm potentiometer lies in a practically vertical position at the side of the potentiometer, its bottom end being about 1" from the baseboard.

Lead No. 33 from the centre terminal of valveholder V3 is taken under the valveholder. The .001 mfd. condenser from the anode terminal of the

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All the earth points of the circuit are taken down to the metal cabinet, and in making these connections it should be seen that the paint is scraped away, so that a good metal to metal contact exists. The cabinet is then earthed as a whole by means of the earth terminal attached to the back of the top cover of the cabinet.

### Operating Instructions.

The set presents no difficulty in operation. Tuning is carried out by the main control, and the procedure is to set the right hand potentiometer which controls the detector oscillations to a point just past half way, with the quench control at minimum, which is when it is turned in an anti-clockwise direction. The detector valve is brought into a condition so that it is just oscillating by adjustment of the fixed reaction coupling afforded by the Cyclon 140 m.mfd. condenser. It should then be possible on all occasions to control the oscillation of the detector valve by use of the right hand potentiometer. The detector valve is always used in an oscillating condition, since these oscillations have to be broken up by the quench frequency. The oscillations of the quench valve are controlled by the left hand potentiometer, and the amount of quench necessary can be adjusted for each individual signal. It is possible to operate the set purely as a detector and L.F. stage if the quench control is turned right back so that it does not operate and the right hand potentiometer is then used as a reaction control.

### Aerial.

The set can be used on an ordinary broadcast aerial, but better results may be obtained on much shorter lengths of wire. The usual methods of aerial construction for efficiency should be followed.

### Valves.

Both the quench and detector valves in our trial receiver were Osram type HL2K, this being of the catkin construction, and the output valve is a

Mazda Pen 220A. It is important that this valve should be used, because the automatic bias has been calculated to suit its characteristics.

### Power Supply.

The high tension supply should be 120 volts and the low tension accumulator 2 volts.

## First Hungarian DX Contest

The National Union of the Hungarian Shortwave Amateurs organises a DX Contest during the five week-ends of May, 1937. Each period begins Saturday at 14 GMT, and ends Sunday at 24 GMT (Monday 00 GMT). Six figure control numbers are to be used, I.Q.S.L. report followed by the serial number of the QSO during the test, totalled to three figures with zeros before. (In fifth QSO: 005.) Every QSO between a HA and an oversea amateur will count two points, if the control numbers are received ok on both sides, and one point, if the number is received only on one side. You can work with the same station on the same week-end again on different frequency bands, but on same bands only on different week-ends. The overseas participants multiply their points by the number of the different HA hams worked, but each HA ham gives in each frequency band an extra multiplier.

The log, containing the data of the transmitter and receiver, the list of the communications with the HA hams during the test (time, call, control numbers, frequency band and counted points) should arrive not later than on 1st August at the Union. (Address: Mátészálló utca 6, Budapest, Hungary.)

The third of the participants in every country (in U.S.A., Canada, Australia, New Zealand, and in the Union of South Africa, in every district), a least one, but not more than three, will get a certificate of their contest work, together with the QSL-s from the HA stations. We beg also the overseas participants to send their QLS-s together with the log.

## The "Perfect" Station

(By Vaughan E. Marshall, VK3UK.)

**The Perfect Transmitter!** It would be reasonable to say that no ham could ever be so unimaginative not to dream of such an outfit at some time or another. But carrying the dream one stage further, why not the Perfect Station? Such a station, where each unit merely functions as part of a smoothly working whole. It has always been a mystery to us why no articles appear on the design of complete stations, but here will be set out the results of one attack at the "Perfect" station problem.

Before attempting any discussion of design, two factors must be kept definitely in mind. The up-to-the-minute outfit of to-day is out-of-date to-morrow, but provided regular station equipment does what is required of it the term out-of-date does not affect the issue. Secondly, station equipment must be looked on as a separate entity from experimental gear. This may sound entirely too ambitious for the average ham, but if one sets out with the definite object in view it is remarkable how little the additional cost hurts, because one's purchasing is spread over a period, and is done in consultation with the junk box. Finally, one other point must be kept in mind: A station is designed for the requirements of the operator himself, thus anyone who has different needs will find some considered necessities here superfluous, and also other needs left out of the reckoning. However, no ham ever builds anything by meticulously copying an article, but merely extracts the portions that will suit his individual taste.

Now proceeding to the actual planning, let us set down systematically the general requirements under the various headings or sections to see how any obstacles may be overcome, or if necessary the general requirements themselves modified to suit our demands.

**General Requirements.**—Station to work on 3.5, 7, 14, 28 MC. Rapid change from band to band. Minimum

of coil change. Break-in operation. The whole to be neat in appearance, so as to fit in to a normal room.

**Sections.**—Antenna, Transmitter, Receiver, Monitor, Frequency Meter. Taking these in turn, we endeavour to design the equipment, keeping in mind the two considerations—firstly, the general requirements, and, secondly, the fact that each section has to be part of a station rather than a disconnected unit.

### Antenna.

The first point to dispose of is an easy one. We dislike throwing switches, and are close to a Diathermy plant, so both facts point to a separate receiving antenna, one of the doublet types. After some experiment we decided on two 33-feet sections for the flat top and 30-feet for the minimum height. It was interesting to note that at 26 feet the doublet made practically no difference over an ordinary type of antenna, but the extra 4 feet reduced the noise from R8 to R3. On 7 me, where the antenna is peaked, and also on 14 me, results proved all that could be desired, giving a greatly increased signal to noise ratio. As only intra-State contact is needed for 3.5 me, it served the purpose there quite as well as an ordinary antenna, with far less noise. We tried a Faraday screen between the antenna coil and receiver, and also an antenna matching device for the various bands, but neither gave sufficient advantage to warrant inclusion in this case.

The transmitting antenna was a more difficult problem. Like so many hams, we have always favoured the Zepp type of antenna, but when one thinks of an all band affair, immediately thoughts of a 136-ft. flat top are conjured up, and that was out of the question for our location. VK3MR uses such a Zepp, with 45-ft. feeders, with results that are too well known to be mentioned. Again, our shack is located under the centre of the antenna, so centre-fed, we reluctantly

admitted, seemed the obvious method of feeding. We have always had a horror of centre fed Zepps, having visions of RF all over the shack, so turned out attention elsewhere. The Collins seemed the answer in excelsis, but the snag was the copper tube feed system, with its cost and weight, to say nothing of the difficulty of obtaining tubing in lengths sufficiently long. Examination of the "Collins Bulletin" on antennas, part of which appeared in "Amateur Radio" a few issues ago, showed that 7/20 wire would present a greater surface area than 1" tubing, and the Loss graph showed that the reduction in efficiency would not be great. The main consideration would be to make the feeders as sound a job mechanically as the tubing would be, also to make the spacing somewhat closer in order to retain the desired characteristic impedance of the line of 300 ohms. Eddystone spacers were used as the spreaders, and were spaced along the line every 24". The feeders were strung out across the yard, with the spacers threaded on one end and then the wires were tightened until they gave out a note like a piano wire. Then the spacers were placed at the correct intervals, a twist taken around each feeder to spacer with some thin wire, and a liberal dose of "dope" applied. After 24 hours a careful examination of each spacer was made, and extra "dope" applied where necessary, and then next day the antenna was strung up. The result was a feeder system that closely approximated to the original copper tubing version. Reference back to the issue of "Amateur Radio" containing the description of the various systems of the Collins Multi-Band antenna will show a large number of suggested lengths. The one we chose was type E, which uses a 67-ft. flat top with 65-ft. feeders. This type is not designed for 3.5 mc operation, but test shows no alteration in signal strength over the State, and results on 7 mc and 14 mc would satisfy even the most critical. We have as yet had no time to try the results on 28 mc, but have no doubt that it would be quite as good as an ordinary antenna could be expected to be on that band. The method of coupling to the transmitter will be described in the next article, which will deal with the Transmitter section of the station.

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# More Key Click Suppression

---

A Vacuum Tube Biassing Relay.

(By E. H. Cox, VK2GU.)

The efficiency of keying filters is something which is strictly relative. Quite properly, any impact suppressor may be judged by the results that it will give on the transmitter, but the results will depend in most cases much more upon the absolute power of the transmitter, the distance of the amateur station, and its immediate BCL neighbours from the nearest or most popular broadcast transmitter, and upon the vintage of the BCL sets in use in the block than they will on the efficiency of the filter that happens to be in use.

Any of the conventional condenser, choke-resistor networks can be depended on to deal fairly well with the clicks inherent in the average nominal 25-watt transmitter if the transmitter happens to be located in a town with several broadcast stations of its own, and if the operator does not have the bad luck to live next door to a particularly inefficient broadcast receiver. The picture changes entirely when the station happens to be operated under special power permit, and to be in the middle of a musically-minded community which insists on receiving its programmes at high noon from B class stations nearly 200 miles away. Canberra lies 170 miles airline from Sydney. Those 170 miles offer many attractions to the tourist. They are replete with majestic mountain ranges and fine forests, and they represent about as bad a stretch of country as the groundwave from a low-powered broadcast station could wish to avoid. Mid-day reception of the Sydney programme is possible in Canberra on the average broadcast receiver only with the gain control screwed practically hard open, and those who maintain that the superheterodyne receiver is immune from clicks are quite evidently without experience of the variety without radio frequency pre-selector when operated at full throttle.

The problem which faced us was to build a filter which would genuinely

deal with the click problem in these circumstances. Starting from the simple centre tap-keying method, and graduating through it to a wide range of blocking and biassing systems, we built up many filter systems of varying degrees of efficiency. Nearly all would work well when the signal level was the equivalent of the darkness level of a fair to middling interstate B class station, but none of the conventional systems was really satisfactory when the level fell to the fractional microvolt which the distant stations present to the receiver input terminals about noon.

The gadget which appears finally to have done the trick was rigged up partly as a result of many trials of conventional filters, and partly to meet inherent features of the present 2GU transmitter. The chief of these features is that with the exception of the CO stage all stages in the transmitter are automatically biassed over grid leak dropping resistors, and it was desired, if possible, to avoid the necessity for any form of fixed bias. In the second place, it was found by repeated experiment that the breaking of any part of the high tension circuit outside the valve it supplied was highly undesirable. If a purely mechanical interrupter was employed, it was quite impossible to develop a filter which would suppress clicks without adding a tail to the signals. No doubt, the solution might have been in the use of a valve interrupter, but a valve large enough to handle the plate current and the pressure used in the transmitter would have been expensive. When we buy expensive valves, we prefer to put them in the final stage of the transmitter.

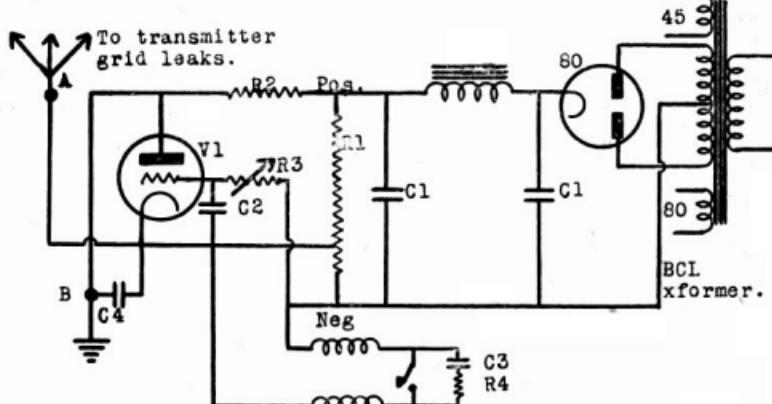
We found ourselves on the right track when we switched over to a grid-blocking system which swung a heavy negative bias on to the grids of all stages but the CO when the key was opened. Quite a simple system, in

which the necessary negative potential was developed over a bleeder on one of the sub-stage power supplies, gave really good results. This system would probably be a sure fire-click suppressor in any but an extreme case of adverse conditions. The level of broadcast signals here, however, is not quite great enough to make it really certain in all conditions, and it has now been replaced with the valve biasing relay shown in the diagram.

Requiring, as it does, the use of a power transformer, rectifier and filter, one or more triodes and a handful of resistors the relay may at first sight appear unnecessarily complicated. Actually it can be built entirely from junk box parts, and it should not cost more than a few shillings if one has

grids of the tubes, biasing them well beyond cut off. Moreover, it does this slowly to prevent any surges, and the time period of the relay can be adjusted with the greatest ease by means of a simple resistor in the grid system of the relay tubes.

In the diagram, the power transformer is of the ordinary broadcast variety, and it can be as old and inefficient as one likes. Its maximum output need not exceed about 20 milliamps in any circumstances, and all that it is required to do is to develop about 400 volts across the extremes of the bleeder R1. Any small broadcast transformer will do this with condenser input if the resistance of the filter choke is not quite abnormally high. The filter choke and



a few old receiving valves on hand. We can honestly say that in performance it is about as far ahead of the simple suppressor networks as an 803 is ahead of a 202, and while its chief value should be in the remote or QRO stations, we believe that it will prove a good investment in any CW station at all.

The relay is placed in a common lead through which all the grid leak return wires are earthed to the transmitter frame. When the key is closed, the valve V1 offers a path to earth for the grid current from the doubler buffer and final stages, which is of negligible resistance compared with that of the grid leak resistances, and which can be disregarded. When the key is opened, the relay opens this earth path, and at the same time swings about 300 volts of negative bias across C4, and thus on to the

the electrolytic condensers C1, C1 both came from the junk box. R1 is a bleeder of conventional broadcast receiver type. Our rig uses two 25,000 ohm voltage dividers in series with a tap about 150 volts from the negative end. R2 should be of approximately 50,000 ohms. Its dissipation capacity need be only small, and we use three 20,000 ohm IRC two-watt resistors in series. The type 80 rectifier in the power pack also may be aged. Ours ceased to perform in a power pack for the receiver long ago, but is satisfactory in its new role. The relay valve V1 must be chosen with a knowledge of the total grid currents which it will be expected to carry to earth. The total grid currents in the 2GU transmitter are about 70 mils, and, in addition, the valve varried something like 10 mils of leakage current from the power pack through R2 when the key is

down. Two type 45's (rejects from the modulator are excellent) have sufficient capacity for this job, and are connected in parallel. C2 and R3 form the network by which the charge and discharge period of the grids of V1 is regulated. In general, if C2 is very small, R3 will have to be of very high value. Our job uses an old quarter microfarad paper condenser and a 50,000 ohm potentiometer connected as a variable resistor. Nearly the whole of this resistance is in circuit. Depending on the accuracy of R3 and C2, and the leakage, if any, through the dielectric of C2, a little experimenting may be necessary with the valves of these two units. The grid leak returns are connected permanently to the filament of the relay valve V1, which is accordingly above earth potential, and the plate to which the positive side of the power pack is connected through R2 is earthed. The fact that the positive side of the pack is earthed should be remembered when assembling it. If the negative side is earthed also our results are not likely to be duplicated. The key is connected in over about 15 feet of lampcord in our case, and the impact suppressor—one of many we had built—was left connected. C4 is a 2-mfd. condenser of 400 volts working rating.

Full operation is easy to follow from the diagram. When the key is opened V1 is blocked beyond cut-off by the voltage drop across the tapped off negative end of the bleeder R1. This stops both the flow of grid current from the transmitter stages, and also the passage of current from the power pack through the plate-filament circuit of V1. Hence with no current flowing through R2 there is no voltage drop across it, and the full pressure on the voltage divider between the positive end and the filament tap (250 to 300 volts) appears across the plate-filament terminals of V1 biasing the stages in the transmitter strongly negative and cutting off all plate current. When the key is closed the bottom section of the bleeder is short-circuited, and the voltage drop it had established across C2 is "slowly" dissipated through R3 until grid and filament are both at the same potential. It is to be observed that the removal of bias from V1 is not sudden, but that the time occupied in the process depends on the values of C2 and R3. The restoration of a circuit between

the plate and filament of V1 is correspondingly gradual. As current from the power pack begins to rise through R2, a voltage drop begins to develop across it, and this voltage grows until when the grid of V1 reaches filament potential practically the whole pressure of the power pack has been transferred from the points A and B in the circuit to the terminals of R2. With the grids of the two type 45 tubes held at filament potential, and the full grid current from the transmitter flowing through them, the pressure across V1 in our case is only about 25 volts.

## FEED-BACK IN FREQUENCY DOUBLERS.

(By VK2PF.)

The device of introducing feed-back into frequency multipliers is probably familiar to most Hams in cases where the stage is used as a quadrupler, but probably few realise what a difference it will make to an ordinary doubler.

Furthermore, it is usually said that the circuit to introduce feed-back should be the same as a plate neutralizing circuit, i.e., with the high tension feeding to the centre point on the plate tank coil.

However, being lazy, I tried it out by simply hooking a midget 23 plate, which I had double spaced from the cold end of the tank coil to the grid of the doubler valve in the already established F.D. circuit.

Results—reports from ZL which had never been better than R7 went to R9 in most cases, none being worse than R8.

It seems to be worth trying.

## N.S.W. Exhibition

The Victorian Division desires to express its good wishes to the New South Wales Division on the occasion of its second Annual Amateur and Shortwave Radio Exhibition. We sincerely trust that the exhibition is a financial as well as an educational and social success.

# Your D.X. Tally

Everyone in the past has had their own idea of the countries comprising a country's worked tally, so the latest list, as endorsed by the I.A.R.U., and published on the A.R.R.L. world-wide map, will be of interest.

The map is an Azimuthal map centred on the U.S.A., but is rather valuable, as it provides an accurate list of countries in the world besides the divisions for W.A.C. awards. The list of countries is published below, and should be accepted as a fair guide for a countries worked tally, and should satisfy the most caustic critic, as the A.R.R.L. have spent some months on this project.

The more forward members of the Australian Amateur Fraternity have been including Tasmania in their tallies of countries, and the list supports this. Some will find it hard to reconcile themselves to this point. However, the list is as follows:—

Time				
Zone.	Country.	Prefix.		
14 & 15	Abyssinia, see Ethiopia			
15	Aden			
14	Aegean Islands	YA		
16 & 17	Afghanistan	K7		
1 to 3	Alaska	ZA		
13	Albania			
15	Aldabra Islands	FA		
12	Algeria			
18½	Andaman Islands			
12	Andorra			
14	Anglo-Egyptian Sudan	ST		
13	Angola	CR6		
14 & 15	Arabia, see Saudi Arabia			
8	Argentina	LU		
11	Ascension Island	ZD8		
20 to 22	Australia	VK		
13	Austria	OE		
10	Azores Islands	CT2		
7	Bahama Islands	VP7		
15	Bahreim Islands	VS8		
12	Balearic Islands	EA6		
17½	Baluchistan	VP6		
8	Bardados			
14	Bechuanaland			
13	Belgian Conga	ON		
12	Belgium	ON		
8	Bermunda Islands	VP9		
17½	Bhutan			
22	Bismarck Archipelago			
8	Bolivia	CP		
19½	Borneo, Netherlands	PK5		
7 to 9	Brazil		PY	
13	British Cameroons, see Nigeria			
6	British Honduras		VP1	
20	British North Borneo		VS1	
20	Brunei			
14	Bulgaria		LZ	
18½	Burma			
13	Cameroons, French		FE8	
3 to 8	Canada		VE	
7	Canal Zone			
11	Canary Islands		EA8	
10	Cape Verde Islands		CR4	
22	Caroline Islands			
20 to 22½	Celebes and Molucca Islands		PK6	
17½	Ceylon		VS7	
8	Chile		CI1	
17 to 20	China		XI1	
21	Chosen (Korea)		J8	
19	Christmas Island		ZC3	
18	Cocos Islands		ZC2	
7	Colombia		HJ	
15	Comoro Islands			
1.22	Cook Islands		ZK1	
12	Corsica			
6	Costa Rica		T1	
14	Crete			
7	Cuba		CM-CO	
7	Curacao and Nether- lands, West Indies		PJ	
14	Cyprus		ZC4	
13	Czechoslovakia		OK	
13	Danzig		YM	
13	Denmark		OZ	
7.20	Dominican Republic		HI	
5	Easter Island			
7	Ecuador		HC	
	(6.41 Guayaquil) (6.46 Quito)			
14	Egypt		SU	
15	Eritrea			
14	Estonia		ES	
	(13.39 Tallinn)			
14 & 15	Ethiopia (Abyssinia)		ET	
12	Faeroes, The		OY	
8	Falkland Islands		VP8	
1	Fanning Island		VR3	
19.20	Federated Malay States			
24	Fiji Islands		VS2	
14	Finland		VR2	
20	Formosa, see Taiwan		OH	
12	France			
13	French Cameroons, see Cameroons			
13	French Equatorial			

# Amateur Radio

	Africa	FQ8	20	Manchukuo
19	French Indo-China	F18	22	Marianas Islands
2	French Oceania	FO8	23	Marshall Islands
11, to 13	French West Africa	FF8	8	Martinique
6	Galapagos Islands	ZD3	16	Mauritus
11	Gambia	D	4 & 6	Mesopotamia, see Iraq
13	Germany	ZB2	1½	Mexico
12	Gibraltar	VR1	1½	Midway Island
24	Gilbert and Ellice Islands and Ocean Island	CR8	8½	K6
17½	Goa	ZD4	Pierre Island	CR7
12	Gold Coast (and British Togoland)	SV	12	Monaco
11	Gough Island	OX	18 to 20	Mongolia
12	Great Britain	FG8	12	Morocco, French
14	Greece	K6	12	Morocco, Spanish
7 to 11	Greenland	TG	14	EA9
8	Guadeloupe	VP3	17½	Mozambique
22	Guam	PZ	12.20	Nepal
6	Guatemala	FY8	7	Netherlands
8.15	Guiana, British	CR5	7	Netherlands West
8.19	Guiana, Neth. (Surinam)	HH	Indies, see Curacao	PA
8	Guiana, French and Inini	K6	23	New Caledonia
11	Guinea, Portuguese	HR	8½	FK8
12	Guinea, Spanish	VS6	Newfoundland and	VO
7	Haiti	HA	Labrador	PK6
1½	Hawaiian Islands	TF	21	New Guinea, Neth.
14 & 15	Hejaz	VU	22	New Guinea, Terri-
6	Honduras	VU	tory of	VK9
20	Hong Kong	EP	23	New Hebrides,
13	Hungary	YI	British	YJ
11	Iceland	GI	23	French
12	Ifni	EI	23½	FU8
17½ & 18½	India (17.53 Calcutta)	I	New Zealand	ZL
8	Inini, see Guiana, French	VP5	6	Nicaragua
15 & 16	Iran (Persia)	J	18½	YN
15	Iraq	PK	Nicobar Islands	ZK2
12	Ireland, Northern	YQ4	13	Nigeria (British
12	Irish Free State	YL	Cameroons)	ZD2
13	Italy	VP2	1	Nieu
7	Jamaica and Cayman Islands	EL	19.20	Non-Federated Malay
21	Japan	LY	States	VS3
19½	Java	LY	20	North Borneo, see
14½	Kenya	VP2	British North Borneo	LA
17	Kerguelen Islands	LY	13	Norway
21	Korea, see Chosen	LX	14	Nyasaland
17½	Laccadive Islands	CR9	23	Ocean Island, see Gil-
14	Latvia	FB8	bert and Ellice Islands	bert
8	Leeward Islands	CT3	16	Oman
11.16	Liberia	VS9	21	Palau (Pelew) Islands
13	Libya	ZB1	14	Palestine
13	Liechtenstein	LY	7	ZC6
13	Lithuania	LX	22	Panama
12	Luxembourg	CR9	8	VK4
20	Macau	FB8	Paraguay	HP
15	Madagascar	CT3	15 & 16	Papua Territory
11	Madeira Islands	VS9	Persia, see Iran	VK4
16.54	Maldives Islands	ZB1	7	Phoenix Islands
13	Malta	VS9	20	Pitcairn Island
		ZB1	1	VR6
			2	Poland
			13	Portugal
			12	Portuguese India,
			17½	see Goa
			12	Principe and Sao
			Thome Islands	KA
			8	Puerto and Virgin
			16	Islands
			14	K4
			Reunion Island	FR8
			Rhodesia, Northern	VQ2

# Amateur Radio

14	Rhodesia, Southern	ZE	14	Transjordan	ZC1
11	Rio de Oro		8	Trinidad and Tobago	VP4
14	Roumania	YR	11	Tristan da Cunha	ZU9
11.37	St. Helena	ZD7	13	Tunisia	FT4
6	Salvador	YS	14	Turkey	TA
13	Sardinia		14½	Uganda	VQ5
1	Samoa, U.S.	K6	1	Union Islands, see Tokelau Islands	
1	Samoa, Western	ZM	14	Union of South Africa	ZS-ZT-ZU
1½	Sandwich Islands		4 to 7	United States	W (N)
19½	Sarawak	VS5	8½	Uruguay	CX
14 & 15	Saudi Arabia		7½	Venezuela	YV
16	Seychelles	VQ9	8	Virgin Islands, see Puerto Rico	
19	Siam	HS	23	Wake Island	K6
11	Sierra Leone	ZD1	8	Windward Islands	
15	Socotra		24	Wrangel Island	
23	Solomon Islands	VR4	15	Yemen	
15	Somaliland, British	VQ6	13	Yugoslavia	YT-YU
15	Somaliland, French	FL8	15	Zanzibar	VK1*
15	Somaliland, Italian				
9.53	South Georgia	VP8			
9	South Orkney Islands	VP8			
8	South Shetland Islands	VP8			
14	South-west Africa, see Union of Sth. Africa				
14 to 24	Soviet Union	U			
14 to 16	European States	U1-7			
16 to 24	Asiatic States	U8-9-0			
12	Spain	EA			
13 & 14	Spitzbergen, see Svalbard				
19.20	Straits Settlements	VS1			
18½ & 19	Sumatra	PK4			
8.19	Surinam, see Guiana, Neth.				
13 & 14	Svalbard (Spitzbergen)				
13	Sweden	SM			
13	Switzerland	HB			
14	Syria				
20	Taiwan (Formosa)	J9			
15	Tanganyika Territory	VQ3			
12	Tangier Zone				
18 & 19	Tannu Tuva				
22	Tasmania	VK7			
17 & 18	Tibet				
20	Timor, Portuguese	CR1O			
12	Togoland, British, see Gold Coast				
12	Togoland, French	FD8			
1	Tokelau (Union) Islands				
24.20	Tonga (Friendly) Islands	VR5			

N.B.—Time Zones—The hour zones are number along the equator, Greenwich being 12, while Eastern Australia is 2 extra. The difference of times can then easily be arrived at.

\*This is undoubtedly incorrect, and may be a misprint for 2K1.—(Editor.)

## TRANSMISSION SCHEDULES. MAY, 1937.

### VK2ME.

Sydney Time. G.M.T.

Sundays: 4 p.m.-6 p.m. 0600—0800  
" 8 p.m.-Mdt. 1000—1400

Mondays: 1.30 a.m.-3.30 a.m. 1530—1730

### VK3ME.

Melbourne Time. G.M.T.

Nightly Monday  
to Saturday  
(inclusive) 7 p.m.-10 p.m. 0900—1200

### VK6ME (9590 K/Cs).

Perth Time. G.M.T.

Nightly Monday  
to Saturday  
(inclusive) 7 p.m.-9 p.m. 1100—1300

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## N.S.W. Amateur and Short-Wave Exhibition

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This Exhibition is to be held in the Lower Hall, Sydney Town Hall, from Monday, 3rd May, to Saturday, 8th May, inclusive. The opening ceremony, at 9 p.m. on the Monday, will be again performed from America, through the courtesy of the General Electric Company, who have placed station W2XAF at our disposal for the occasion. We are also indebted to Amalgamated Wireless (A.sia) Limited, who are broadcasting the replies through VK2ME. It is hoped that Mr. E. T. Fisk, who is at present abroad, may be able to speak from Europe.

The opening proceedings will be relayed by 2BL over National Stations.

The Exhibition is more extensive than last year, there being 14 extra stands, the exhibits being as far as possible of technical interest.

Stations will be active on both 7 and 14 mc under the call sign VK2WI, and all amateurs are requested to be on the lookout for this station during the Exhibition. When on 14 mc four different frequencies may be used—14036, 14140, 14260 and 14390.

### COMPETITIONS.

**1st Section.**—Affiliated Radio Clubs compete for the "Wireless Weekly" Cup for the best complete stall exhibit. There will be prizes of £3 3s., £2 2s. and £1 1s., also donated by "Wireless Weekly," for the best pieces of apparatus on these stalls.

**2nd Section.**—(a) The best multi-band transmitter. Two prizes, first

and second, and one special prize for the transmitter best showing originality and economy in design. (b) The best amateur receiver. Three prizes. (c) The most compact and complete portable station (U.H.F. gear and transceivers eligible). First prize only. (d) The best U.H.F. receiver. Two prizes. (e) The best U.H.F. transmitter. Two prizes. (f) The best piece of apparatus not included in the above classes. (g) The best dual or all-wave receiver (open to short-wave listeners only). Three prizes.

The prizes will include:—1-808 and 2-866's, 7 receiving type Radiotrons, A.W. Valve Co.; £5 5s. order for Ducon condensers, Colville transmitting condenser, Hammarlund transmitting condenser, 2-6L6's. Open order for £5 5s. (Price's Radio), O—I M.A. Triplet meter, O—I M.A. Palec meter. Other prizes have not yet been announced.

A feature of the Exhibition will be the U.H.F. working exhibit. Two 5-metre stations in the hall will work with mobile stations in cars travelling about the city.

On the Tuesday evening (4th May) the final of the Competition for the Trophy presented by the Senior Radio Inspector (Mr. W. T. S. Crawford) will be held at the Radio Inspector's office, Haymarket Post Office Chambers, George Street, Sydney, at 8 p.m.

This trophy is for the best amateur operator in N.S.W., and a list of the finalists was published in the March issue.

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# A Visit and Station Description

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**VK2YW—Wagga.**

(By VK2IG.)

March 26 and 27 saw a miniature convention at Wagga, where VK2YW enjoyed (we hope!) a visit from 2AP, Parkes; 2OJ and 2IG, of Albury, and at the same time contacted 2IM, of Leeton, making a good Zone 5 round-up.

We visitors had a great time, and the cordiality and hospitality of YW's maer, Mrs. Pitman, his sister, "Jess," and himself was wonderful, and so they have only themselves to blame if they have a repeat visit.

The transmitter is arranged on a rack and panel about four feet high by 20 inches wide, mounted on the operating table, and comprises a 59 E.C. oscillator, 59 doubler for 20 metres, 46 buffer to a pair of 10's in the final.

Antenna switches are mounted on top of the panel, and permit a choice of either the 66 ft. Zepp for general use or two half-waves in phase for 20 metres. Two fine sticks approximately 50 ft. high support these. The location is one of the highest in Wagga, and a nice view of the district is obtained.

For fone a separate operating table is used, on which are mounted the mike and electric turn-tables. A sloping panel contains the gain-control, switches and faders. The mike is a Reiss type, and the pickups are crystal jobs. This table allows complete station operation from the chair, and is very fine. The modulator incorporates a pre-amplifier and the line-up is 56 pre-amp, 56, pair 56's as phase changes, pair 45's choke coupled to a pair of 50's as final modulator tubes. Power is supplied from five packs from the A.C. lines for the various R.F. stages and modulator.

The receiver is a 3-tube converter fed into a 6-tube TRF job, and gives both fidelity and high gain. The output is fed into a dynamic

speaker mounted in the open fireplace with its baffle. Though the weather at the time suited this arrangement, we understand that the door comes off the ice-box in the winter, and the speaker goes in there !!

The house is equipped with an excellent workshop, where further amplifiers, speakers, and test equipment are installed. The rooms are wired to allow reproduction of music from the operating room and also for microphone connections to permit broadcasts from the piano in the drawing room.

The station is owned by Mr. D. H. Pitman, 49 Macleay Street, Wagga, and conjointly operated by himself and sister, who, by the way, has a very fine voice and manner for the microphone. Both "Doug" and "Jess" welcome any hams floating through their town, and one and all can be assured of a most cordial reception.

To finish up with, we saw a 5-metre job in the process, and YW expects to WAC with this soon.

VK2IG.

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**NOTICE.—VICTORIAN DIVISION,  
TECHNICAL DEVELOPMENT SECTION.**

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Applications are requested for members interested in the technical development of the Victorian Division, for inclusion on the Committee.

Don't be nervous; file your application right away!

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We regret to announce that Jim Marsland, VK3NY, our Magazine Secretary, has been ill for a week or so. We hope to see him about soon.

## R.A.A.F. Wireless Reserve Notes

Officer Commanding: Flying Officer R. H. Cunningham, 397 High Street, Glen Iris, S.E.6, Victoria (VK3ML).

District Commanders—

Second District, N.S.W.—A. G. Henry, Clareville Avenue, Sandringham (VK2ZK).

Seventh District, Tasmania—R. Cannon, Goldie Street, Wynyard (VK7RC).

Third District, Victoria—Pilot Officer V. E. Marshall, 3 Myrtle Avenue, Kew (VK3UK).

Fourth District, Queensland—A. E. Walz, Sandgate Road, Nundah (VK4AW).

Fifth District, South Australia—F. M. Gray, 52 Ormond Grove, Toorak Gardens (VK5SU).

Sixth District, West Australia—J. Mead, 111 Gerrard St., East Victoria Park, W.A. (VK6LJ)

### 3rd District Notes.

We have been living in the hopes that conditions on the 3.5 mc band would have begun to improve before this. The summer just past has given us the worst conditions we have experienced on this band since we started in 1929. In past years signals began to pick up by the end of March, but are still as bad as they were during the middle of January. In the meantime, it is impossible to incorporate R/T into our section working, and also the chances of running a successful portable exercise are remote. Thus we are more or less marking time awaiting the lifting of conditions. As most of the VMC stations have phone installed, there will be no hold-up in getting going R/T message handling when the time is right. As far as the suggested portable exercise is concerned, we intend to operate two metropolitan stations, which will consist of a control station and deputy. 56 mc R/T will be used between these two, so that the exchange of traffic and instructions may pass between them whilst handling traffic with the country men on 3.5 mc. It is proposed to work up a war situation, and then for the duration of the exercise handle the type of traffic that would be passing through such stations were the occasion the real thing.

Our congratulations go to 3C4 on his engagement. We are not unduly praising him when we say his future wife is a lucky lady. Murray is one of our original members, and through-

out has given of his best to the Reserve. We wish you every happiness, OM.

3A1 is managing to cover remarkably large slices of Victoria in very small periods of time, in the course of his business.

3A6 has settled into the section work very quickly, and is handling traffic like an old-timer already.

Our congratulations to 3B4 on the arrival of a brand new Junior Op. A future Reserve member, we hope!

3B6 has settled down in his new QRA, and will be back on the job in a week or so.

3C2 will shortly be moving, and so will be off the air for a period.

3C3 made a flying trip to town recently. These country men certainly seem to hate to be away in VIM. They can't get back to the country quickly enough! Alan's trip as an example. He arrives on the Thursday afternoon and leaves for home again the following afternoon. If any talking at all is to be done it has to be done mighty quickly!

3C5 has been having further trouble with his transmitter. Some obscure fault in his PA tube seems to be the cause.

3A2 has been trying out the Collins antenna as used at 3Z1, and is as delighted with the results as 3Z1 is.

(Continued on page 28)

## Federal and Victorian QSL Bureau

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(By Ray E. Jones, VK3RJ,  
Qsl Manager.)



The Hungarian amateurs have organised a DX contest during the five week-ends of May. The contest periods are 1400 G.M.T. Saturday to 2400 G.M.T. Sunday. Six figure serial numbers must be exchanged with the HA station, the number being made up as follows:—RST report plus three zeros for the first QSO, RST plus 001 for the second, 002 for the third, and so on. Stations may be worked on each band each week-end. A complete exchange of numbers counts two points. Final scores are obtained by multiplying the points by the number of different HA stations worked on each band. Logs giving full QSO particulars should be sent to Mátyás-ter 6, Budapest, Hungary, by August 1. The three leading stations in each State of Australia will receive a certificate. Further particulars may be had from this Bureau.

ZL1LM, ex-VK3KO, is holidaying in Australia, and proved an entertaining visitor at the April meeting of the key section of the Victorian Division.

D. Randall, Ayre, VK3KP, is leaving for Europe on 25th May, and will be absent until February, 1938. In addition to being envious of you, OM, we wish you a most interesting trip and safe home.

The A.R.R.L. advise that they will no longer handle cards for stations other than in W, VE, K, KA and N.

Roth Jones, VK3BG, is contemplating a trip to VK5 during May. He

requests VK5 to look out for him on 7150 or 14300 KC.

SS2R is a Yankee cruiser stationed at Bermuda completing survey work. The operator is W6MZ, Qsl., via A.R.R.L.

The Air Force is becoming a popular hide-out for hams. Among those on the pay-sheet are VK3HB, EZ, HT, FX, OL, DD, BE, 2YB, and a couple of gropers.

Latest advice from Hartford indicates that the A.R.R.L. will no longer handle listener reports. The large volume of D reports have clogged the system, so it seems.

Cards for the following stations may be secured on receipt of stamped envelope at the Bureau, 23 Landale Street, Box Hill:—VK3AH, AD, AM, AP, AX, BJ, BL, BS, CA, CV, CW, DI, DJ, DS, EM, ES, EX, FA, FG, FJ, FK, FM, FN, FS, GB, GE, IL, JC, JK, KG, KI, KK, KP, KO, KY, LQ, LT, LY, NA, NB, NG, NU, OI, OM, PA, PG, PH, RL, RM, RQ, RT, SM, SO, ST, TG, TQ, UD, UF, UJ, UN, VB, XD, XG, XK, XT, XW, YL, YS, ZB, ZQ, ZW.

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## Divisional Notes

### CANDID COMMUNICATION TO OUR VALUED CORRESPONDENTS.

From VK3RX.

What I am going to mention in this open letter must not be taken as being directed personally to any one, but is the result of some six or eight months editing of these Divisional Notes.

Several pages of the total number received generally have to be re-written because of the too free use of abbreviations, and to make them sufficiently readable for the linotyper to set up. A little punctuation and capital letters now and then, where needed, would make things easier.

Please double space all typewritten notes if you can remember it, and, of course, one side only.

Now for a few "don'ts":—

DON'T use "es" for "and." "es" is the Morse abbreviation for "&," and should not be written.

DON'T write the Greek letter "lambda" for metres or wavelength.

DON'T write "wid" and "fer" instead of "with" and "for."

When mentioning calls, don't write V.K.3. RX., but put "VK3RX."

DON'T write more than we usually publish each issue. A glance over the back issues will show you. If you usually write a thousand words, and 500 is published, prune it a bit yourself before you send it to the editor, to arrive here before the 18th of the month. It goes to press the following day, hail, rain, or Sunday notwithstanding.

### N.S.W. Division

#### New Members of the Council.

VK2UX.—New City Vice-President. Was President of this Division from the time the W.I.A. went into liquidation some few years ago. He successfully piloted the A.R.A. through a very stormy period, and was, among others, instrumental in again placing the W.I.A. in N.S.W. on the high peak where it is to-day. For that work he was unanimously elected a life member of the Institute.

VK2UV.—Assistant Secretary. A very keen amateur and just the man for the position. Takes a great interest in 5-metre work, and in between his DX-ing on that band manages

to find time for his work as an analytical chemist, holding a B.Sc. degree.

VK2RA.—Publicity Officer. For some years past has been in the country without any power supply, but has now settled in Sydney, and is active on 7 and 14 mc. With a B.E. degree, is engaged in structural engineering and University lectures.

VK2ZR.—Is President of the Larkemba Radio Club, and an enthusiastic member of the Institute. Owing to changes of address he has not been on the air much lately, but hopes to be active again before long.

VK2VN.—Secretary of the U.H.F. Section, which recently held a very successful Field Day, the success being largely due to his organisation. As Traffic Officer for the Division he has been handling traffic with U.S.A. in connection with the opening of the Radio Exhibition.

# Amateur Radio

## W/VE DX CONTEST.

Information with regard to scores in this contest has been very meagre. The outstanding performance in this State was that of VK2LZ, who had a score of 41,000 points, including 256 contacts on 28 mc. VK2PN, of Tumut, scored 12,500, and VK2RA 10,400. It is believed that VK2GU also did well. VK2NQ, working on 7 mc only, had 170 contacts in 30 hours.

In the phone section indirect information is to hand that VK2GU had in the vicinity of 300 contacts on 14 and 28 mc. A truly remarkable performance.

## ZONE NOTES.

### Zone 5—VK2IG.

DX is rolling in on 20 metres, and is easy to raise. 40 metres is improving, and W's are reaching peaks on all bands.

Old 2QD is now improving, but still in hospital after his bad mo' bike accident.

2EU now has 3-stage xtal, 47, 46, pair 46's, and is getting some DX now on 40 m.

2QE worked plenty W's in contest, and has been getting general DX, but oscillator playing up, and now talking xtal.

2OJ trying fone on 20, but rather busy. Changed to Johnson Q antenna, which should be directional for Asia. Fb for Europe, but only fair for U.S.A.

2AFD back in Albury, but too busy to get transmitter perking. Has no AC, and brought new vibrator unit back for power supply.

2IM on fone trying mikes. Crystal mike best fidelity, but "Harley" not far behind, and has more punch.

2YW building new amplifier. Getting out well, and reproduction good.

2IG perked up transmitter, and getting some FB DX, including OE, SP, OZ, HP1, MX for new countries. Conditions peculiar on 20. At Easter Europeans were R6, and better in the afternoon, and one evening at 10 p.m.

for about an hour. All stations called except YR5CR were raised. Countries heard were FA8, YR5, OZ, OE, MX, SU, F, D, G, SP, VP2, PY, LU, J, HP1, HR1, etc., showing conditions generally good. Though PY and FA8 were not called, other VK's contacted them, and HR1 was missed through QRM. At present few Europeans are heard at night, but coming through in mornings and afternoons.

## LAKEMBA RADIO CLUB—VK2LR.

(Affiliated with the W.I.A.)

(By 2DL.)

The following is the latest revised of transmitting members of the above club:—VKs, 2LR, 2ABI, 2ABT, 2ACE, 2ACK, 2AFK, 2AS, 2CL, 2CY, 2DL, 2ED, 2EH, 2EV, 2FD, 2FG, 2GM, 2HE, 2IC, 2IO, 2JT, 2KS, 2LW, 2MH, 2NJ, 2OD, 2OI, 2OW, 2PX, 2QP, 2QX, 2TG, 2TQ, 2UB, 2UC, 2VA, 2WB, 2XD, 4XM (ex 2XM), 2XZ, 2ZR. Non-transmitting members number 25, two of whom appear to have been successful at the recent A.O.P.C. exam.

General 5-metre activity appears to have showed a marked dropping off in this district. However, a report by our secretary at a recent meeting to the effect that two-way communication had been established between America and Europe may assist in the renewal of past interest.

Members are all looking forward to the annual reunion, which promises to be better than ever; full details will appear in these notes next month. Then there is the amateur exhibition being conducted by the W.I.A. A special club committee has been elected to handle the arrangements for the Lakemba Stall. It is interesting to note that of the committee of four elected, each have either a car or truck, so that the problem of transport of apparatus, irrespective of size, will be a minor detail.

## ULTRA HIGH FREQUENCY SECTION (N.S.W. DIVISION).

(By VK2VN.)

As has been noticed in the past, activity in this State on the ultra highs continues to increase.

Several test have been conducted during the past couple of months, and

some very interesting facts established.

Most important of all possibly was the big 5MX Field Day, held on 14th March. Details were not available for the last issue, but have now come to hand. The longest distance contact was established between VK2JU, located at The Gib, Bowral, and the official station, 2WI, at Kurrajong Heights, the distance being about 70 miles airline. The previous best contact was made a few years ago between Mt. Victoria (3,400 ft.) and Sydney, the distance in this case being 50 miles.

One of the highlights was 2ZC's report from Mt. Sugarloaf (1,450 ft., near Newcastle) of 2NO and 2EM in VIS. As far as can be made out the only stations to hear 2ZC were 2EM and 2BP, at Hazelbrook.

Unfortunately, no contact was made by 2ZC, who incidentally was using as an antenna 6 half waves in phase, in the Bruce form, the directional effect of which may possibly account

for the signals not being audible in the southern city.

2ZC was the only mobile station using a beam antenna, but it is agreed by most that by using some very directional array, such as was used by the former, and a fair amount of power, that signals could be put into Newcastle quite consistently.

Those stations reporting 2ZC noticed that at intervals the signals disappeared completely.

Other gear used by 2ZC was as follows:—Transmitter PP 45's T.N.T. Circuit with 350 V Carter Genemotor, Modulator 76-42, Receiver 3-tube super-regenerative.

2UV, at Hawkesbury Lookout, was using a 2-tube Transceiver, whilst 2JJU's signals came from PP 42's in TPTG.

The control station, 2WI, got quite good results with a PP6A6 T.N.T., the receiver being a super-regen. 76-42 and a half wave doublet antenna.

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Our 1937

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## Amateur Radio

All those stations which participated are looking forward to the next test, which will be held very shortly, and some excellent suggestions regarding the form it should take are to hand.

On the evening of 23rd March, members were the guests of Mr. Knock, VK2NO, at his home at Bronte, and were very interested in the high-power 5MX transmitter installed, and also the fine rotational beam system controlled from the operating position.

Schedules are being arranged with W6KIP in Los Angeles, and full details will be available within the next few weeks. The gear used at W6KIP is as follows:—Transmitter 6L6 osc., 802 doubler, 35T doubler, and 150T final with an input of 600 watts on 56 mc!! The receiver is a 7-tube superhet, while several different antenna systems are available, the best of which, we are told, is the Diamond.

W6IOJ has received a report on his 56MC signals from F8VQ, while W3SI reports numerous 10-metre harmonics from European stations.

Speaking of harmonics brings us back to Canberra—VK2GU and 2AFB—both of whom have heard harmonics on 56 Mc from 28 MC W stations. 2GU is still using PP 800's, although a change is being made to 808's. 2GU's frequency, by the way, is 56224KC, and he uses a superhet for receiving.

2AFB is using PP45's, but the only station to be qso'd by him is 2GU.

This will not be the case for long, as 2PN, at Tumut, about 60 miles from 2AFB, is well established, and is just completing a superhet rx.

Schedules have been kept between 2GU, 2NO and 2LZ, but so far no signals have been heard by the three stations.

2HZ has recently moved up the North Shore line to Lindfield, where a very fb. dx location has been selected, and we can expect to hear some good results from Bill on 5MX.

2NO spends most of his spare time —what little there is—in trying out various beam arrays.

2AZ still putting out nice crystal controlled signals from what would seem to be a rather poor 56 MC qra. However, results obtained are contrary to that belief.

2LZ is just recuperating from the strain of 88 hours in the recent W/VE contest.

2XK is heard quite frequently, and seems to be getting out excellently, being heard at remarkable strength by most of the mobile stations on the Field Day.

2AFE is a newcomer with good ICW signals.

2ZH and 2ZN are heard periodically, but no word has been received from them lately.

That practically covers all the activities in this division during the past month, and we are only waiting for the word that Australian stations have been heard in the States, or vice versa, with fundamentals on 56 Mc. No doubt the exertions of the real enthusiasts will be rewarded in the near future.

## Victorian Division

### MALLEE AND NORTHERN DISTRICT.

(3ZK—3HX.)

3KR has put up a beam for 28 mc, but reckons that it gets monotonous working Yanks on 14 mc.

3TL made a debut on 28 mc, and succeeded in getting R6 from 3KR. Treb is going to put in high-power modulators, so as he can work some DX fone.

3CE made a trip to Kerang last month, and between himself and the junior-op took home a lot of gear. Roy doing good work on 14 mc.

3EP has at long last built his new rig, 53 Jones exciter, 45 buffer, and link coupled to ??? 210 soon.

3FF inactive waiting for an AC generator, and meanwhile building power packs, etc.

3TS still working low power rig with a very nice T9x signal.

## Amateur Radio

3BG, we understand, has turned his hand to fone, but have not heard him as yet.

3IH is still plugging away with his rig, and is building a speech amp in preparation for fone operation.

3WN is putting out a very nice fone signal now.

3HN heard now and again on fone. Mac is building a new shack, when he will install a 400-volt generator.

3HR still working QRP, but threatens to rebuild the rig in the near future.

3OR active on 3.5 mc with an R50 signal. The reason is that Murray has a new Osc. tube, which made all the difference in his sigs.

3NN has not been heard for some weeks.

3BM is on the job with a 6A6 PP xtal osc. with an 801 in the final, making a big noise.

3ZK mostly on 3.5 mc with a very strong signal; threatens to give 14 mc another go.

3HX also mostly on 3.5 mc, and playing round with a speech amp.

### WESTERN DISTRICT NOTES.

(By 3HG.)

3PE is a new ham at Camperdown. Has not been heard yet.

3PG, once VK's most consistent QRP DX station, is letting his licence expire and is selling his gear.

3CK heard on 7 mc occasionally.

3BG worked ZS, using the 6L6 tritet described last month.

3RG keeps the ball rolling on 250 metres in Castlemaine.

3SE seems to be the only Ballarat ham active at present.

3XG is another who has been and gone and done it! Congrats and best wishes to you both.

3NQ put in a re-appearance on 3.5 mc the other night, and says he will be on now and again during the winter.

3OW fairly quiet, but works a little DX when inclined.

3HG testing single stage transmitter with quite good results, reports of R8 phone from ZL. Intends installing a 6L6 in the new Jones regenerative C.O. Also rebuilding receiver very soon.

3HL is building the Jones Ultra-gainer receiver.

### 28 AND 56 MC NOTES.

(By A. Pritchard, VK3CP.)

5 mx DX at last! VK2GU has broken the ice at the receiving end. Harold is still waiting for his 808's, and at present is concentrating on the RX. On the 7th March, during a sked with 2LZ and 2NO on 5 mx (both inaudible at 2GU) ZL1CK's 10 mx harm. was fb on four occasions between 11.15 and 11.45 a.m. The following Sunday morning, 2GU hrds harms. from 4ZL's a K6, and between 15 and 20 W's, all at good strength. VK2GU has put up a wonderful score in the W— phone contest also. During the w-cw contest we hrds LU7AZ r8 hr at 9.30 a.m. on the 11th March. 3BQ hrds him the day before, and 3YP the day after. Max said he was

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# Amateur Radio

To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceding publication.

r6 on the US beam and r9 + on the European beam. Unfortunately for us, he was very busy qso w's—hi! On the 17th March OA4J was back on 10 again, and 3YP had a long qso at 1 p.m., and at 1.45 p.m., qso hr. OA4J was r5-6, but gave us poor reports. The Europeans have been scarce. G5QY qso on 21st March at 10.50 p.m., r5 both ends; VK3BQ on the 4th April, at 7 p.m., hrd VU2CQ r8, also r6 at 8.30 p.m. during qso with ZS6AR. At 9.30 p.m. YL2CG clg F3BJ—ng for qso though. Stations from the States have dropped off, and the best times for cw qso's are 7.30 a.m. and 1.30 p.m., although some phones are OK between those times. W5FVA, with PP 807's, 70 wts input, has excellent phone. W6KEi is the most outstanding signal from the States. His antenna is the berries, for 6KEi only uses app. 100 wts into a WE261A, mod. by class B, 801's. His antenna is a diamond, hung on 40 ft. telegraph poles, 150 ft. between each, and having 44 waves on each leg, fed by a 1/2 wave matching stub. There are angles of 80 deg. at feed end and 100 deg. opposite. From Asia J2KJ, on cw, and J2CF, now using phone (fair English!), about 6.30 p.m., keep the band interesting. The best phone on the band is K6LCV, the RF line up being 3-53's in a P. Push exciter, 802, T55 and PP T55's. VK5KO keeps VK5 on the map, and also uses the Taylor T55 in his final—with his beam antenna most reports from the

States are r8. VK3BW, in Portarlington, has been re-building most of his rig—new 8-tube super fb on 5 and 10. Archie has a rotary beam under construction, and at present is exper. with the Johnson Q feed. The TX line x up is 53 7 mc xtal, 802 doub, 807 buff, 834 final—800 reg doub on 5 mx, mod by class B 210's. At VK3YP Ingram has been at it again —more improvements !!—802 tritet, 807 doub, 800 buff or doub to 5 mx, 808 final on 10 and 5 mx. The Super hr at 3 CP seems as good on 5 as on 10 mhx, but is extremely selective, having 2 iron cored i f stages. VK3JO is r9, with perfect phone. 3JO has started the ball rolling, with controlled (non-xtal) rigs on 5 mx. With the beat note on, there is no sign of freq. shift or freq. mod. The line up is 6P6 Electron coup. osc. from 20 mx, 6L6 doub, 6L6 neut final—mod. by class AB 42's. VK3MR has an Eimac 50T in operation now, but Snowy has had trouble with neut on 10' mx. VK3CZ is completely re-building his xmitter, Philip EL3 as tritet, from 40 mx xtal, '46 buff on 20 mx, 210 reg doub to 10, driving the 800's. Sunday, 11th April, was fb for South Africa, although there were not many on either end. VK3XP had a long chat with ZE1JU around 5 p.m., and VK3BQ had an hour qso between 7 and 8 p.m. ZE1JJ was qso hr at 5.30 p.m. and ZE1JU at 6.30. At 7.45 p.m. ZS1C qso'd VK3BW and 3CP at

## HAMS

**E**ARLY Application is advised for the 60-watt Pentodes which were announced in the March issue of "A.R." These valves are a first-grade product, and are made by the 362 Valve Co. Ltd., London. Further Technical information can be obtained from the January, 1937, issue of "Television and Short-Wave World."

This tube only requires about 3 watts of Grid excitation for maximum output, and being a screen grid needs no neutralising. It gives wonderful results Suppressor modulated on 14 and 28 mc. For further dope call on or write

**Norm. GUNTER**

VK3NG

7 Harrison Crescent, Hawthorn

## Amateur Radio

8 p.m. ZE1JU called VK2BX, also qso'd ZL1AR. There are many ZL's on the band at present, ZL1CD, 3DJ, 4FW, 3AB, 1FT, 1GX, 3KZ and 1BC, the last-named is outstanding, and using an RK20 as final amp with 100 wts input. The ant. has a flat top of 67 ft., fed by 40 ft. feeder; lower end of feeder is a brass tube—Lecher wire system—tuned to 20 mx—on 10, the untuned lead is clipped 4 feet from the bottom. Say, chaps, in the other States, I'm not a mind-reader. Please send along the dope re your 28-56 mc experiments.

opportune time to foster a few local contests to create interest during the winter months. Some chaps don't realise the benefits gained by entering for such contests, which calls for good operating procedure. Very little has been heard from our country stations, but no doubt in the next few months they will be heard in Adelaide on 80 or 160 metres. The latter band is one which is not exploited enough by chaps nowadays.

### South Australian Division

(By VK5KL.)

During the latter part of March, VK5 hams were well represented in the "Matrimonial Stakes." 5MV, 5WP, and 5JR all lined up to the barrier, and now, whatever they may have to repent for after, everyone wishes them the very best of luck in their new sphere, and may all their troubles be little ones. Another contender was 5XA, who performed the deed on 10th April. April is a busy month in W.I.A. circles for VK5, due to elections, and next month will see a lot of new faces on council, also in the chairs presiding at meetings.

At the present moment the activity on 5 metres is amazing. Never during the writer's three years' experiments on this band have so many stations been heard on. With more turning their attention to 5 metres, some very interesting results should be produced. 5FM, after twelve months' absence, returned with a nice signal from a 45, mod. by a 2A5. 5HD is still the highlight when on. 5ZU, with xtal rig, was heard by 5GF at Mt. Barker recently in a 5-metre field day test. At present 10 mx has gone off slightly, but 5KO and 5LJ, using directional antennas, are getting over to W, OK. During the Yank fone contest few VK5 stations took the opportunity to qso some DX fone. 5AI reports over a 100 contacts.

Now DX contests are over until possibly October, it would be an

### Tasmanian Division

At the April meeting of this division a letter was received from Mr. Hooker (7JH), resigning as president of Tasmanian Division W.I.A.

Mr. Hooker's resignation was accepted with regret, and we extend to him our sincere thanks for his untiring work to the division in the past two years.

Owing to outstanding subs. and rental costs of the club rooms, the Council is considering the hiring of a room at the Y.M.C.A. for meeting nights only until such times as our finances permit the renting of permanent quarters again.

The lecture for the night was delivered by the secretary, Mr. H. M. Moorhouse (7HM) on the "Cosmic Ray," including a description of the apparatus installed on the S.S. "Lanena" for recording the intensity of the ray in different latitudes. Members hope to be able to inspect this gear when the "Lanena" arrives back in Hobart.

The 200-metre gang have received notice of shortened hours on Sunday owing to the new "B" class station 7HT operating during the mid-day sessions.

#### Members' Activities.

7YL.—Has the "dx itch," and opened the account with a PA and a K5. Hopes to reach a total of 76 countries in a year.

7KV.—Landed the elusive European on 10 metres to complete his WAC on ten. Two half-waves in phase did the trick. FB, Keith.

## Amateur Radio

7JH.—Very consistent on 20 of late, and working plenty of dx with QRP. Tried loop modulation on his receiver to 7LJ with good results.

7HM.—Heard regularly on 40 metres. Working VK's and a few W's with three-stage xtal and 17 watts to final E406.

7DH.—Finished six months' CW probation, and hopes to put out quality fone soon.

7CM.—Heard occasionally on 20 mx working a fair amount of DX.

7PA.—Regularly on 200, occasionally on 20.

7JB.—Still waiting for 5 mx skeds. Wat sa, boys? Active on 20 mx fone skeds with W2IXY, HKIZ.

7AB.—Honeymooning in VIM. Has a 35T ready for installation in final.

7LZ.—Working plenty of DX on 20 when local QRM permits.

7CL.—Active in A.R.R.L. fone contest.

7BQ.—Using a 3-stage xtal rig on 40 mx with a TC04—10. Also active on 200 and 5mx.

7RK.—Re-building at present, but promises big noise when completed.

7HY.—Re-builds his rig if he gets an R4 or under report. Be home next time we visit, Henry!

7KR.—Active on 40 and 20 metres with fair amount of DX on the latter band. Has BCL troubles on 40 mx fone.

7RC.—Little heard of on S/W. Grinding out canned music to B.C.L.'s on 200 mx.

7DR.—Closed down and all the gear purchased by 7LR.

7RY.—Recently visited VIH, but did not have time to visit all the hams in Hobart. Active on 40 and 200 mx.

7CK.—Hope to hear you again on 80 mx during the winter, Poley.

P. & L. Wireless Supplies Pty. Ltd., who are making radio history at 31 Hardware Street, Melbourne, announce that they have been appointed agents for the famous EDDYSTONE components. Eddystone has been on the English market for many years, and specialise in short wave and transmitting parts. P. & L. have no hesitation in saying that these components are the best procurable.

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Hams are being well served with any amount of courtesy and attention at the P. & L. Hardware street store, and this fresh venture should undoubtedly prove of additional interest and prestige.

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## Amateur Radio

### CORRESPONDENCE SECTION.

(To the Editor "Amateur Radio.")  
Dear Sir,—I read with interest your sub-editorial in the March issue relating to an "Experimenter's Section" in our magazine. I appeal to you boys one and all to help this section, which I hope will be started immediately, and a wealth of information will be gained. No matter how small or trivial the thing may sound to you, it may be the means of helping someone else. And remember, one and all, you cannot do too much to help this magazine of ours, it is ours, so everyone of you should put all you can into it and make it a magazine which will hold its way with pride for many years to come.

ROTH JONES (VK3BG).

We need more support, OMS, before we can start—come in, please.—  
(Editor.)

East Vic. Pk.,  
W. Aust.,  
March 30.

The Secretary,  
"Amateur Radio."

Dear OM,—Just like to ask all VK hams to pse qso W3FKB should they have the opportunity. John Seaman has been confined to a special chair as the result of an auto. accident, and Ham Radio is the only thing he is able to do. We are all extremely lucky when it is considered, and it must be an absolute God-send to have Ham Radio to a chap like that.

It is for this reason that I ask this favour, to put a lil memo. in the Hams' Magazine, and to try and cheer our brother Ham.

Thanks a lot, and for now, vy 73 and cheerio,

I remain, yours fraternally,  
JACK MEAD (VK6LJ).

(Continued from Page 18)

3F9 is still without his genny, which burnt out some time ago. He will be back on the job again shortly.

3D3 has just installed a wind-driven generator.

3D4 has his new transmitter going well now. Tube line-up is 53-6P6-830B.

3D5 is having trouble in eliminating parasitic oscillations from his PA.

3F2 is settling down in the training section, and is beginning to get the hang of procedure very well. The first couple of schedules are always rather confusing when one is wondering what it is all about.

During the month we received from the Amalgamated Wireless Valve Co. Ltd. a copy of their Radiotron Map Folder, Mileage Chart and Cavalcade of Communications. The Map Folder and Mileage Chart are particularly useful to hams in long distance work, as it is possible to compute from them the mileage of overseas cities from Australia and their local time as compared with E.A.S.T. A request accompanied by the usual penny stamp for mailing should be sent to the Amalgamated Wireless Valve Co. Ltd., 47 York Street, Sydney, when the company would be only too pleased to send on a copy of each of the above. We are also informed that the Radiotron stand at the Wireless Institute of Australia Exhibition at the Sydney Town Hall in May will be of considerable interest to all experimenters as this company is specially catering for Australian experimenters. Those having the opportunity should not miss the display.

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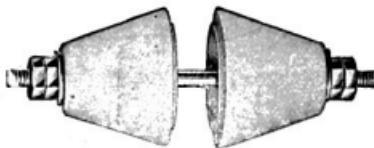
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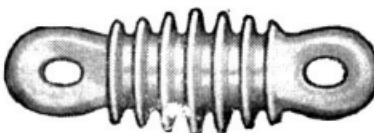
**X**TALS by W9ADN, 80 at £1; 40 BT £1; RF Chokes by ON4DJ, 10/200 MX 175 MA, 2/11; 5MX, 2/-. BUGS, as Vibro, steel base, 35/-. KEYS, as P.O, nickel-plated, 15/-. VK3RJ, 23 Landale St., Box Hill, Vic.

I have written previously on the value of high-grade insulation used in Eddystone receiving and transmitting components. The efficiency of any RF circuit depends very largely on the HF resistance offered by insulation leakage and circuit connections. In these days we are becoming Frequentite, Steatite and Isolantite minded, and have been quick to realise that ebonite and similar materials are "taboo" on the H.F.'s. As the frequency is raised so must the quality of insulation be bettered; ask the ham who has used ordinary sockets and condensers on 28 and 56 m/cs! As well as being built around the best insulation possible, Eddystone parts are solid, rugged, and precision made.

Often a little bit too much overlooked is insulation of the antenna. It is rather useless building up high efficiency receivers and transmitters and then to lose much of the power in the feeder and aerial system. The Steatite strain insulator, tested to 400 lbs., is 3½ inches long, and has an exceptionally long leakage path, ensuring protection against losses in damp weather. Feeders may be held rigidly apart with the aid of the Frequentite Bar Insulator, which allows spacing of 2 inches, which is ideal for Multiband transmission lines. All other insulators, such as Stand-Offs and Lead-Ins, are fully described in the Eddystone catalogue, which is available free for the asking.



Cat. No. 1018,  
3/4.



Cat. No. 999,  
1/5.

**R. H. Cunningham**  
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